REMARKS

The comments of the applicant below are each preceded by related comments of the examiner (in small, bold type).

> **Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (USPN 5,491,629, referred to as Fox).**
>
> **As to claims 1 and 6, Fox discloses a machine-based method comprising: receiving historical (Fox, C 18 L 50: historical weather data) multi-dimensional data (Fox, C 13 L 13-20: weather data 201) representing multiple source variables having different strengths of measurement (Fox, C 14 L 60: "k" variables; also see C 06 L 22: weather and other variables; EN: climatology in general uses multiple source elements like temperature, precipitation etc. see C 05 L 16) to be used as an input to a predictive model (Fox, Abstract: predictive model) of a commercial system (Fox, Abstract: Executive Information System (EIS); EN: EIS is a representative of a commercial system) , assigning a status to each source variable, the status comprising the variable being a predictor primary variable or a transformed variable or having transformations applied in a variable definition field (Fox, C02 L05-40: define source, acquire, and achieve target);**
>
> **applying a first set of transformations to the source variables (Fox, C 13 L 18: transformations of those variables), and**
>
> **applying a second set of transformations to the data, the second set of transformations being selected based on the strength of measurement represented by a variable (Fox, C 05 L 55: weather impact measurement through historical correlation; EN: correlation is to establish a relation between variables, and measurement through correlation would be based on the strength of measurement represented by a variable).**
>
> **Fox does not teach variables selected to increase predictive power. However, it would have been obvious to one with ordinary skills in the art at the time the invention was made to see that since the goal of Fox's invention is to improve productivity (Fox, C 04 L 48: improve productivity) by weather forecasting, there would be increased predictive power to support it.**

Amended claim 1 recites the following features related to a predictive model:

1. "receiving historical data representing source variables to be used as an input." The source variables include "*nominal variables* or *ordinal variables.*" Fox by contrast used only interval variables in his predictive model (column 11, lines 35-36 and column 13, lines 35-38), not *nominal variables* or *ordinal variables*.

2. "assigning a status to *each* source variable." The status includes "the *variable* being a predictor primary variable or a transformed variable or having transformations applied in a variable definition field."

Fox did not assign a status to *each* of this variables, let alone the status being a predictor primary variable or a transformed variable or having transformations applied in a variable

definition field. The examiner quotes **"Fox, C02 L05-40: as telling the reader to "define source."** This is simply a misreading. Fox did not refer to defining a source, but rather to separate steps of defining assortments and then sourcing the assortments:

> ... a retailer must have a merchandise plan that provides the retailer with the ability to (1) <u>define, source, acquire, and achieve specific target merchandise assortments</u> for each individual store location; ... (column 2, lines 17-21)

In other words, Fox said that the retailer should be able to define specific merchandise assortments, then identify sources of specific merchandise assortments, This had nothing to do with Fox's variables used for the predictive model. Neither did what was said here have anything to do with *assigning a status to each variable*, let alone the *status* including a variable being a predictor primary variable or a transformed variable or having transformations applied in a variable definition field.

3. "applying a *second set of transformations* to the data." The second set of transformations is selected "based on strength of measurement represented by a variable."

Fox did not apply a second set of transformations to the data, based on strength of measurement represented by a variable. The term "strength of measurement", known in statistics, means the scale (e.g., nominal scale, ordinal scale, interval scale, or ratio scale) used in measurement (e.g., http://en.wikipedia.org/wiki/Level_of_measurement). Fox used only interval variables and did not consider the strength of measurement represented by his variables. The examiner's position is that, in Fox, **"correlation is to establish a relation between variables, and measurement through correlation would be based on the strength of measurement represented by a variable."** However, by correlation, Fox meant a relationship between weather and sales. Fox stated:

> The present invention provides ... (6) a predictive weather impact model, which links quantitative weather impact measurement through historical correlation, with quantitative forecasts, ... (column 7, lines 4-6)
> The correlation processor 704 produces the deweatherized data 205 based upon substituting normal weather data 716 into the weather impact model 720. The deweatherized data 205 is used as a baseline input to the managerial plan 130, thereby providing the retailer with the capability to produce a revised managerial plan 207 to be used as input to the forecasting processor 706. (column 11, lines 51-58)
> This model is based on the assumption that there is a correlation (i.e., a statistically significant relationship) between the change in weather (i.e., temperature and precipitation), and the change in sales. (column 14, lines 60-63)

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In other words, Fox described correlating weather and retail sales to assist the retailer with managerial plans. Such a correlation had nothing to do with "strength of measurement" of the source variables. Fox was not at all concerned with the strength of measurement of his source variable, i.e., the weather, but was concentrating on the relation of the source variables to the retail sales.

Fox also did not apply a second set of transformations on the data, let alone the transformations being selected based on strength of measurement represented by a variable.

> **As to the additional limitation in Claim 6, Fox discloses adjusting unstable values of the variables (Fox, C 14 L 64: regression is the statistical technique employed; EN: regression is a statistical technique that deals with adjustment and counter-adjustment) to reduce inaccurate (Fox, C15 L 02: more accurately define the observed changes) associations (Fox, C 14 L 65: quantify these relationships; EN: relationships are associations between variables).**

Amended claim 6 also includes features similar to feature 1 of claim 1 and is patentable for at least the reason discussed with regard to feature 1 of claim 1.

In addition, the applicant disagrees with the examiner's assertion that Fox described adjusting unstable values of the variables. Fox described using regression to build the correlation between weather and sales into equations. Fox said:

> Multiple regression is the statistical technique employed by the correlation processor 704 to quantify these relationships, and to turn them into a usable equation, referred to as the weather impact model. (column 14, lines 64-67)

Fox did not even consider any unstable values of variables, let alone adjusting the unstable values. At the portion to which the examiner pointed, in column 15, line 2, Fox said that:

> The deweatherization regression model also considers other variables which are not strictly weather-based to more accurately define the observed changes in retail sales. These include the external and internal factors discussed above. (column 14, line 67 to column 15, line 3)

In other words, Fox was talking about including variables other than weather to increase accuracy of the model. This had nothing to do with adjusting the unstable values.

> **As to claim 8, Fox discloses a machine-based method comprising in connection with a project in which a user generates a predictive model (Fox, Abstract: predictive model) based on historical data about a system being modeled (Fox, C 18 L 50: historical weather data).**
>
> **Fox does not teach automatically imputing missing values for continuous variables associated with the data, the variables having different strengths of measurement. However,**

it would have been obvious to one with ordinary skills in the art at the time the invention
was made that Fox's invention uses regression (Fox, C 14 L 64: regression is the statistical
technique employed), and to employ regression one would use a method like curve-fitting
where missing values are imputed, because this would reduce distortion.
　　　Refer to (Fox, C02 L05-40: define source, acquire, and achieve target). In order to
define, acquire and transform source variables, it is imperative that a status be assigned and
therefore it is inherent.
　　　Fox's invention uses regression (Fox, C 14 L 64: regression is the statistical
technique employed), and to employ regression one would use a method like curvefitting
where missing values are imputed, in order to reduce distortion.

Amended claim 8 also includes features similar to feature 1 of claim 1 and is patentable for at least the reasons discussed with respect to feature 1 of claim 1.

In addition, the applicant disagrees with the examiner's assertion that it would have been obvious, after reading Fox, to "impute missing values for variables" and "use the imputed missing values in generating the predictive model". Fox constructed an equation, which is the weather impact model, that represented the relationships between sales and weather, using selected data (column 14, line 59 to col. 15, line 21). There would have been no need to impute *missing values* of the variables for use in generating the predictive model because without doing so, Fox had already generated the equation or his weather impact model (column 14, lines 66-67). Accordingly, contrary to the examiner's assertion, one skilled in the art would not have imputed "missing values for variables" and used "the imputed missing values in generating the predictive model", as recited by claim 8.

All of the dependent claims are patentable for at least similar reasons as those for the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.
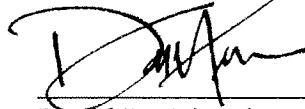
Apply $555 for the Petition for Extension of Time fee and any other charges or credits to deposit account 06-1050, referencing attorney docket 17146-0004001.

Respectfully submitted,

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